

Keynote Speaker Corey Geiger

, Inc



Dairy is making major moves

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Knowledge Exchange Division





DAIRY: A DOMESTIC AND
GLOBAL PERSPECTIVE

Dairy is dynamic, milk matters most



Source: USDA. Presentation by Corey Geiger, CoBank.

Dairy's growth measured by cows:

- 1997 — 9.3 million dairy cows
- 2022 — 9.4 million dairy cows
- 1.5% growth rate for cows

Dairy's growth by measuring milk:

- 1997 — 156.6 billion pounds
- 2022 — 226.5 billion pounds
- 44.6% growth rate for milk

U.S. Dairy is a \$59 billion category

Dairy is the largest category in the supermarket

It ranks higher than the No. 2 combined category of alcohol sales

Domestic dairy consumption is at the highest level since 1960

U.S. consumers eat 655 pounds (per capita)

Over the past 10 years, growth rate was 52 pounds per person

22% growth in domestic dairy consumption since 1975

Dairy is an economic driver across the U.S.

California: \$63
billion in
economic activity

California:
443,000 jobs

Wisconsin: \$45.6
billion in
economic activity

Wisconsin: Each
cow is a \$36,000
economic engine

New York: \$42
billion in
economic activity

Texas: \$40
billion in
economic activity

Iowa: Each cow
is a \$25,000
economic engine

Source: USDA. Presentation by Corey Geiger, CoBank.

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Dairy economics across the U.S.

State share of agricultural activity:

- California 14.7%
- Wisconsin 50.7%
- Idaho 35.5%
- New York 53.5%
- Michigan 26.8%
- New Mexico 43.4%
- Pennsylvania 29%
- Vermont 65.0%



Source: USDA. Presentation by Corey Geiger, CoBank.

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**Globally,
dairy will
be a
growth
leader**

Strong growth in worldwide protein consumption

- Upper income countries to grow by 6%
- Middle income countries to

**Animal proteins may not
grow as fast in lower
income countries**

- Dairy will play leading role among animal proteins growing the fastest

Globally, dairy will be a growth leader

Skimmed milk power (SMP) to grow by 20% over the next decade

- European Union and United States lead

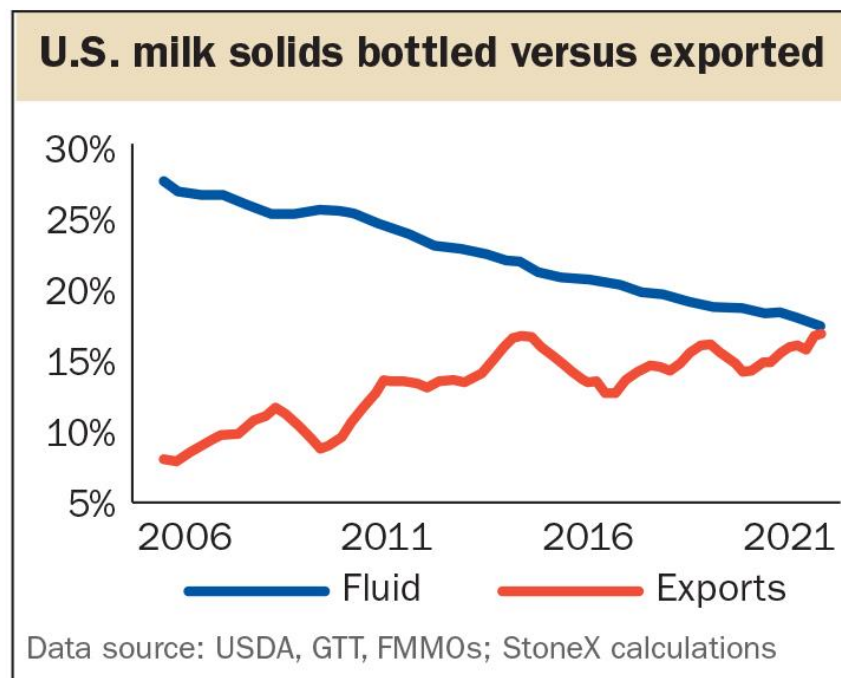
Cheese: Could grow 13% over the next decade

30% of the new cheese production could come from two areas:

- European Union
- United States

Two dairy categories diverge in the U.S.

- USDEC founded in 1995
- Exports represented 2% to 3% of U.S. milk supply in 1995
- Exports represented 17% to 18% of U.S. milk supply in 2022
- This growth took place as U.S. milk grew 45.4% since 1995
- Exports will soon overtake fluid milk in volume



Source: USDA. Presentation by Corey Geiger, CoBank.

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U.S. enters the export arena in 1995



Today: 18% of U.S. milk production

5.5 days/month, cows fill export orders

2020 sales: \$6.5 billion – a record

2021 sales: \$7.7 billion – a record

2022 sales: \$9.6 billion - *new* record

Source: USDA. Presentation by Corey Geiger, CoBank.

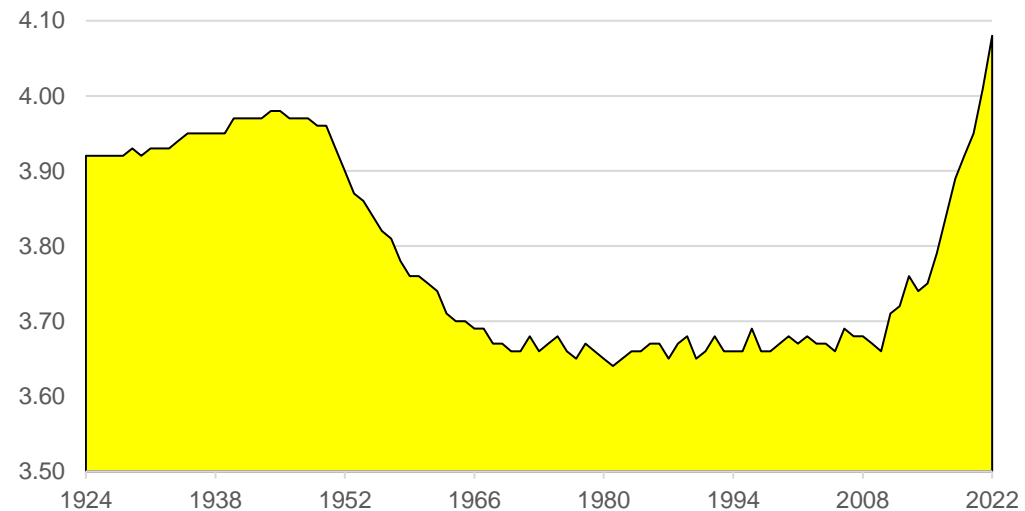
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Milk is a dynamic, nutritionally improving food

- Composition evolving to meet market demand
- **Not** number 2 yellow dent corn
- Butterfat topped previous 1945 record of 3.98%
- Butterfat, protein levels will continue to grow
 - Nutrient-dense components bring value to consumers, farmers, processors

Butterfat has climbed to a record 4.08%

1924 to 2022 Butterfat %



Track milk or component production?

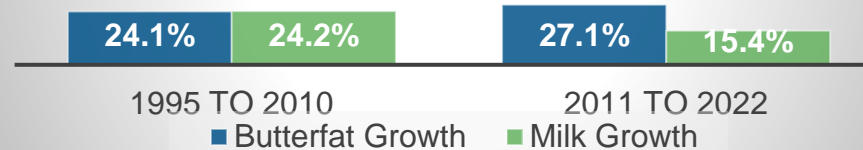
Total U.S. milk output climbed from 196 to 226.4 billion pounds

- 15.4% growth 2011 to 2022

Total U.S. butterfat climbed from 7.3 to 9.3 billion pounds

- 27.1% growth 2011 to 2022

Butterfat production outpaced milk production by nearly 8%

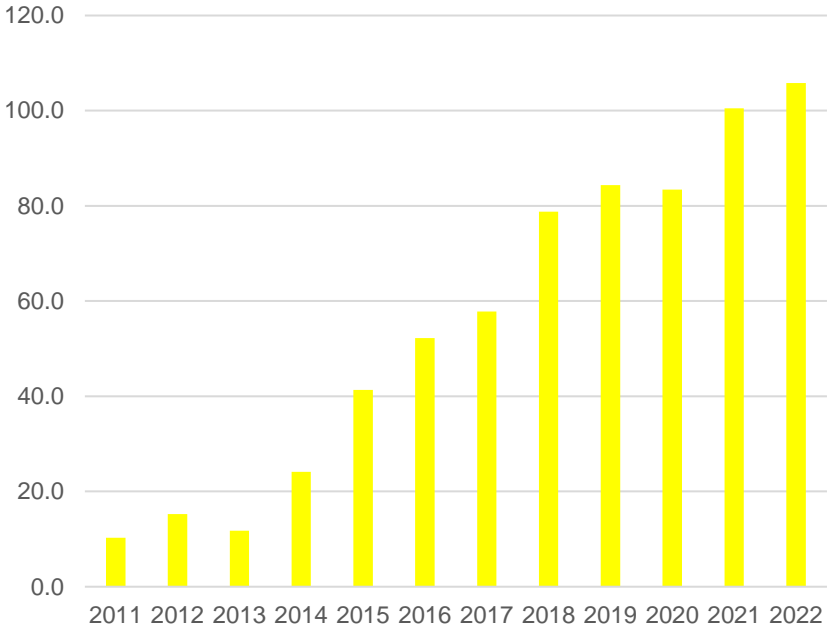


Source: USDA. Presentation by Corey Geiger, CoBank.

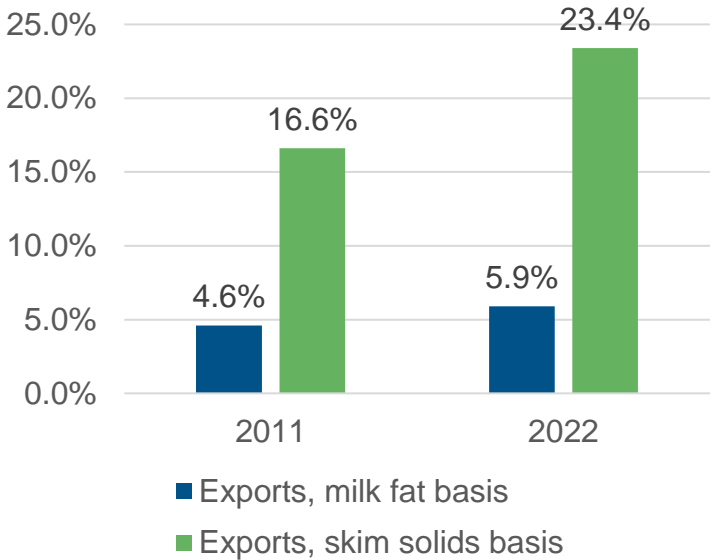
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Butterfat markets remain underserved

U.S. butter imports have grown ten fold



Skim solids, low-milkfat products dominate dairy product exports

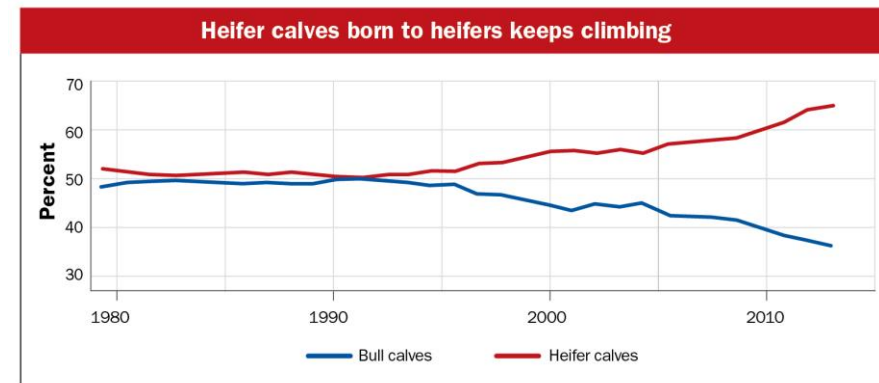


Source: USDA and U.S. Dairy Export Council. Presentation by Corey Geiger, CoBank.

The triple play on U.S. dairy farms

Sexed Semen • Genomics • Beef on Dairy

- Sexed semen was the first part of the triple play
- First introduced to the industry in 2003
- Sexed semen represented 49% of dairy units sold by A.I. in 2022



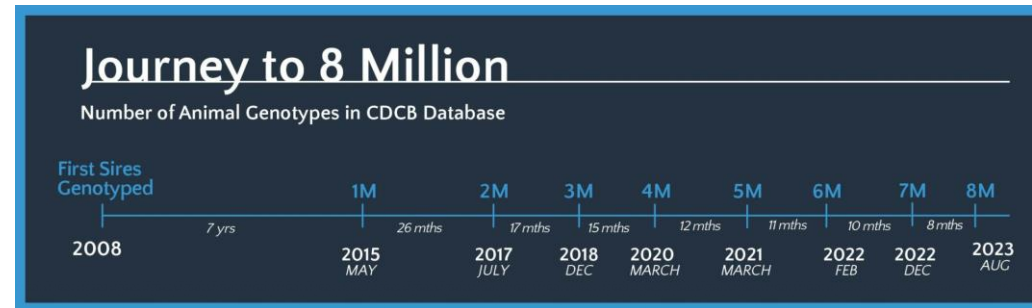
27 million births from 1981 – 2014

Source: Council on Dairy Cattle Breeding. Presentation by Corey Geiger, CoBank.

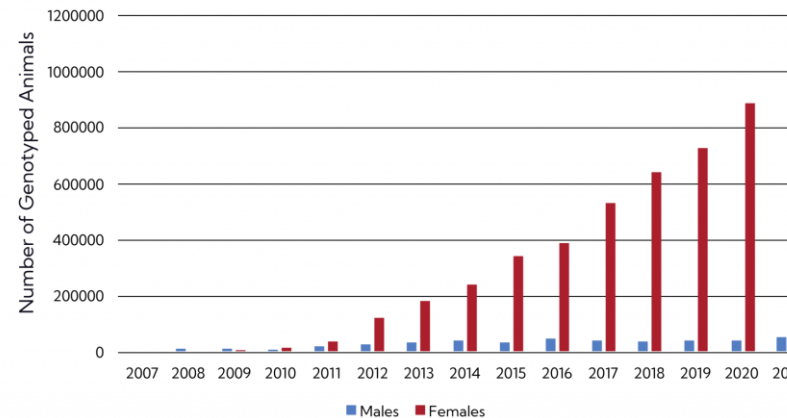
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Genomics — study of DNA — driving progress

- The dairy cow is most studied animal
- 16% of U.S. dairy heifers have genomic tests
 - Revealing 70% of genetic ability as a cow while still a calf
- Data collection, accuracy drive predictions
- Genomic science has identified new traits
- Information fuels innovation



Genotypes Added Each Year to CDCB National Cooperator Database

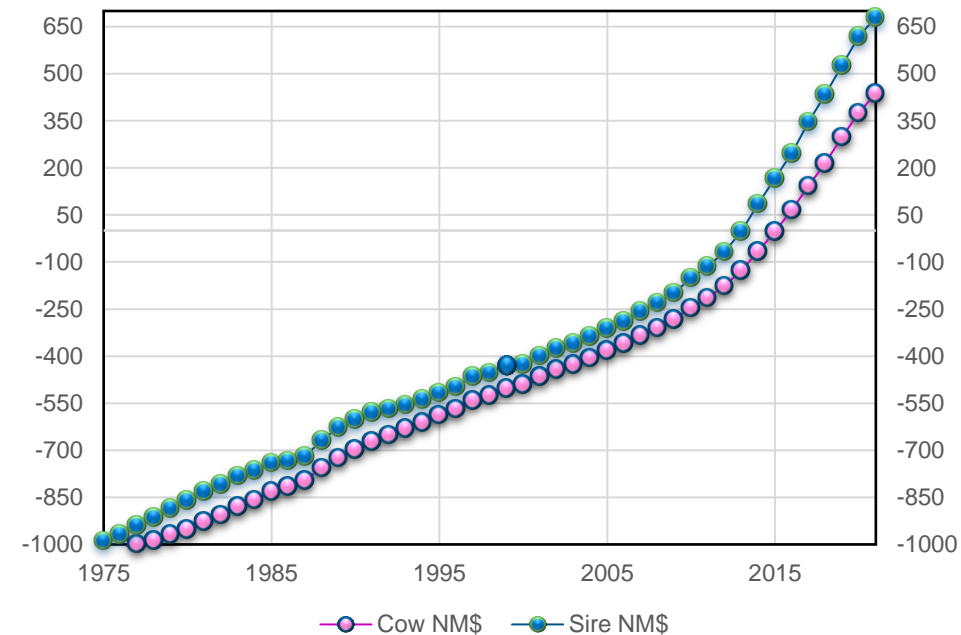


Genetics improve dairy's carbon footprint

An example:

- Solar panels power:
 - Barns with 480 bulls
 - 72 lasers sexing semen running at 30,000 pulses per second, 24 hours a day
- Solar panels cannot compete with genetics for carbon reduction
 - 10-years of solar panels to have same impact from **1 month** of genetic gains on semen sold
- Genetic gains measured by more production, better health, longer cow life

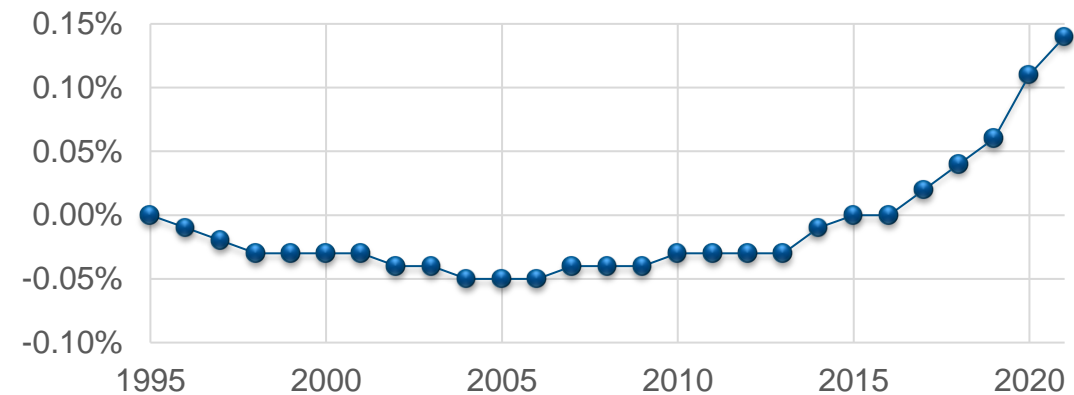
Getting more with less



Trait improvement takes place much faster

- 1995 to 2016: Milkfat percentages hovered near neutral or negative numbers
- 2017: Milkfat moved to a positive 0.02%
- 2021: Leapt to new heights reaching a positive 0.14%

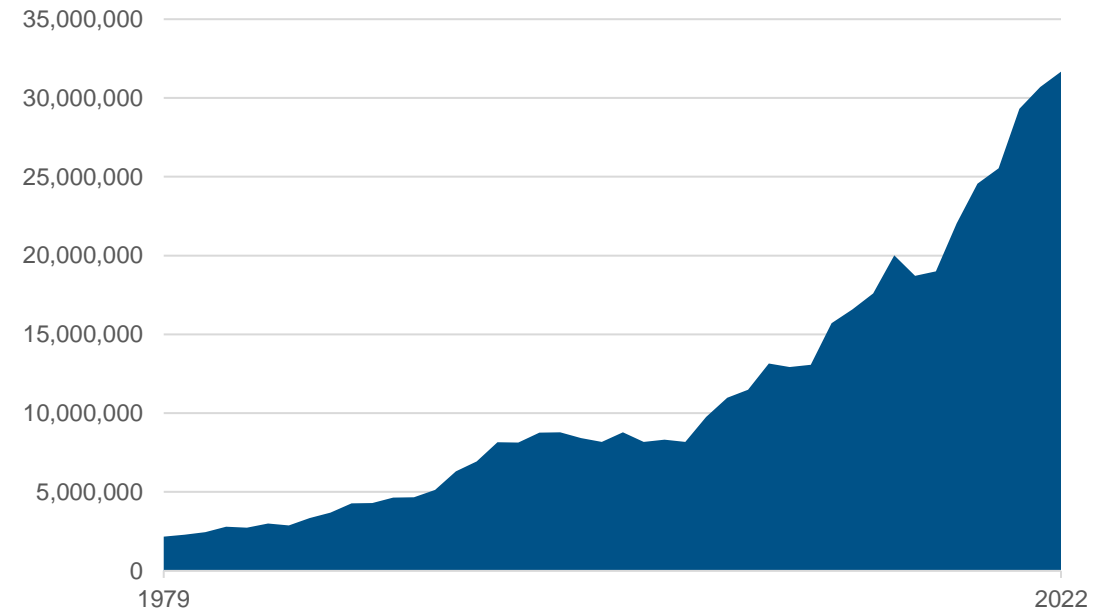
Breeding values for Holstein butterfat tests are climbing quickly



The global dairy community benefits from progress

- Dairy semen exports:
 - In 2010 – 13 million units
 - In 2016 – 19 million units
 - By 2022 – 31.5 million units
- Exports top domestic
 - 34% sold in the U.S.
 - 66% exported outside U.S.
- All producers, processors benefit from carbon footprint reductions

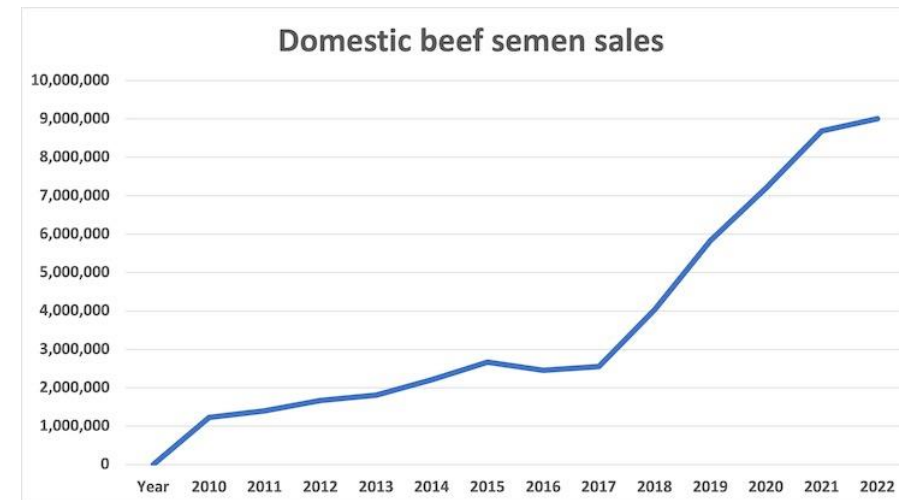
U.S. genetics making a global impact



The triple play on U.S. dairy farms

Sexed Semen • Genomics • Beef on Dairy

- Beef semen on dairy cows was the third part of the triple play
- These beef semen sales are to dairy farmers, not beef ranchers
 - 2017: 2.5 million units
 - 2018: 4.0 million units
 - 2019: 5.8 million units
 - 2020: 7.2 million units
 - 2021: 8.7 million units
 - 2022: 9.0 million units



Source: Council on Dairy Cattle Breeding. Presentation by Corey Geiger, CoBank.

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The triple play on U.S. dairy farms

- Genomics • Sexed Semen • Beef on Dairy

What does this mean for livestock?

- **2016: 220,000 beef-on-dairy calves**
- 2018: 410,000 beef-on-dairy calves
- 2020: 1.6 million beef-on-dairy calves
- **2022: 2.6 million beef-on-dairy calves**

What does this mean for livestock?

- 2022: That's 7% of the fed slaughter
- 2026: Could become 15% of the fed slaughter

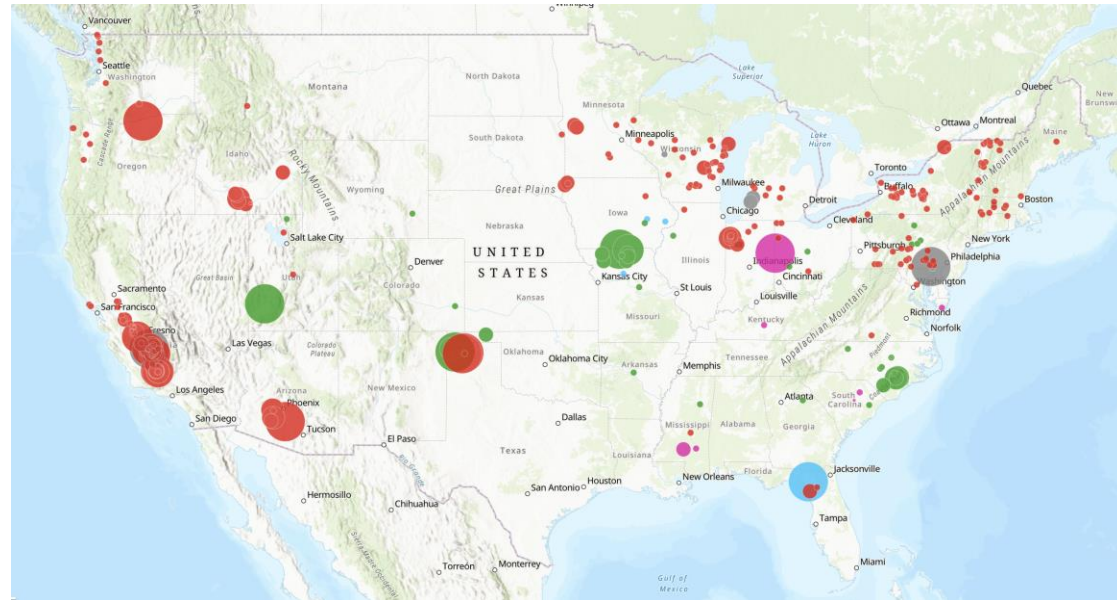
Source: CattleFax

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Agriculture will continue to innovate on energy

- 343 on-farm digesters
- Dairy leads all ag (red)
 - 78% of active digesters
 - Hogs a distant second - 14%
- Compressed natural gas (CNG) is most popular
 - CNG captures carbon credits in California - Low Carbon Fuel Standard Program
- 20% of U.S. dairy cows support methane digesters
 - At \$100/cow, 40 cents per cwt. added

Dairy leads the green energy movement

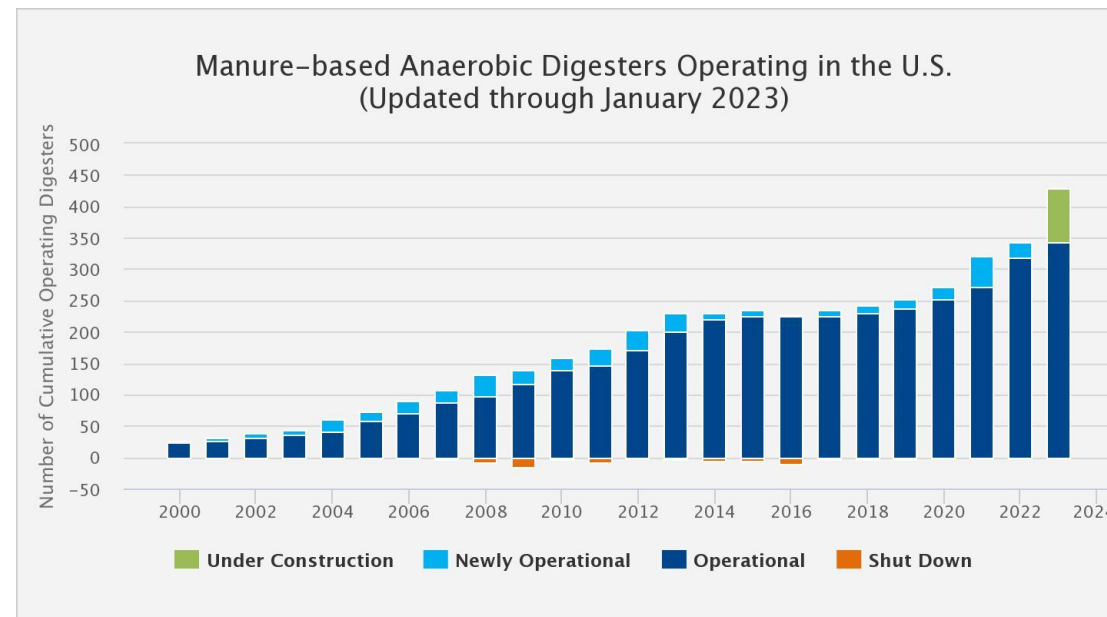


Source: USDA Economic Research Service and U.S. Environmental Protection Agency (EPA) AgSTAR project. Presentation by Corey Geiger, CoBank.

Dairy poised to grow green footprint

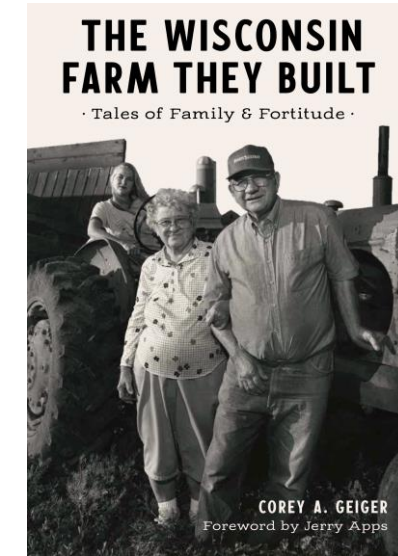
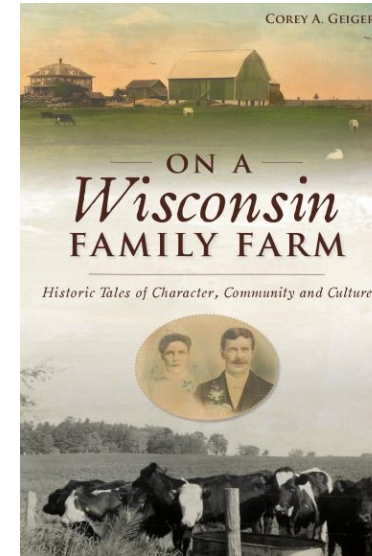
- Green energy is core to California dairy farms
- California accounts for 18.5% of U.S. milk
- 343 U.S. digesters
 - 120 in California
 - 105 more under construction
- California's dairy digester program delivers 22% of state's GHG reduction

Dairy leads the green energy movement



Today's stories

- The Cheeseheads are Born
- Copper Cows of the Prohibition
- The Love and Death of Allis



Signed copies available this morning and at: www.coreygeiger.com

Sold in all 50 states

2 Key Women – Anna & Julia



Anna Satorie Burich
Husband, John



Julia Burich Pritzl
Husband, Elmer

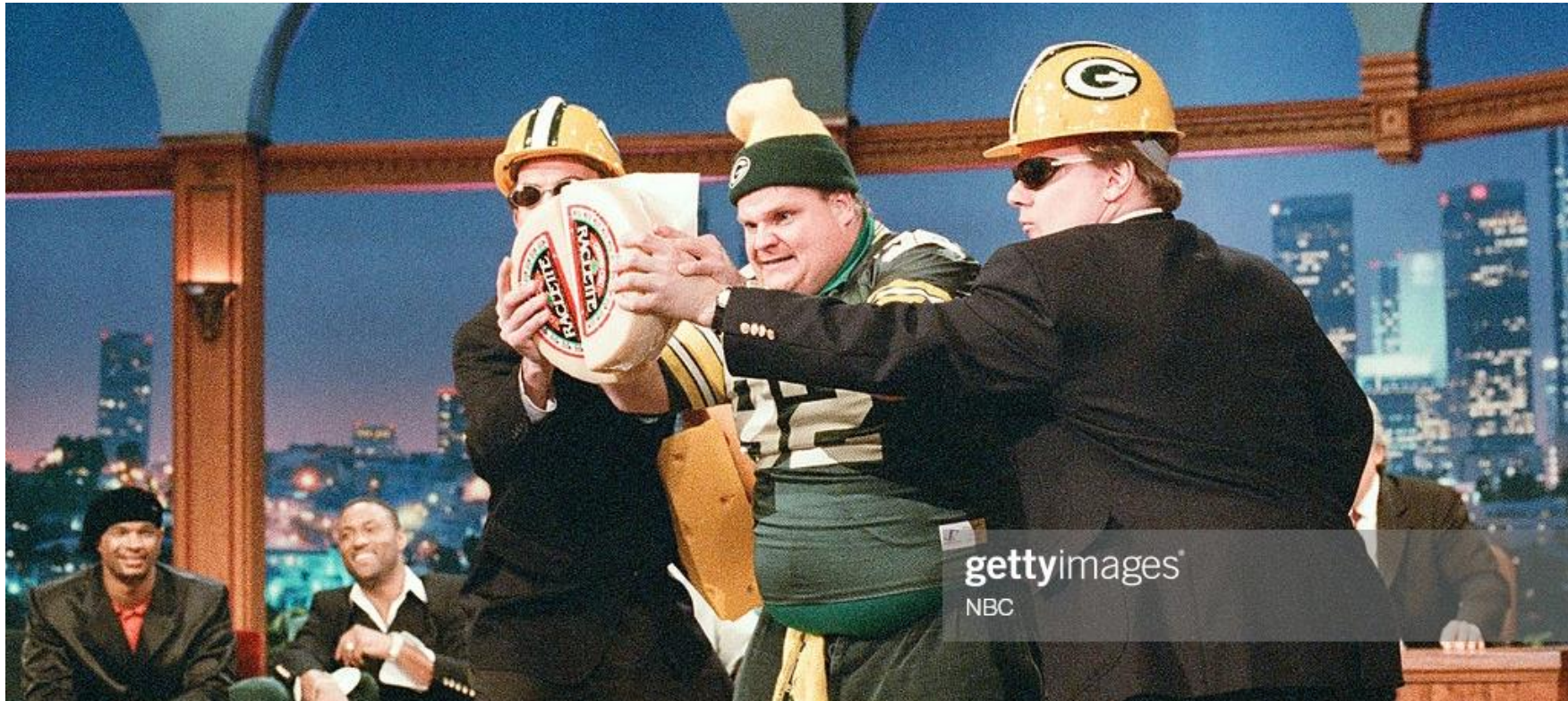


Anna Satorie Burich



Julia Burich Pritzl

The Cheesehead Legacy



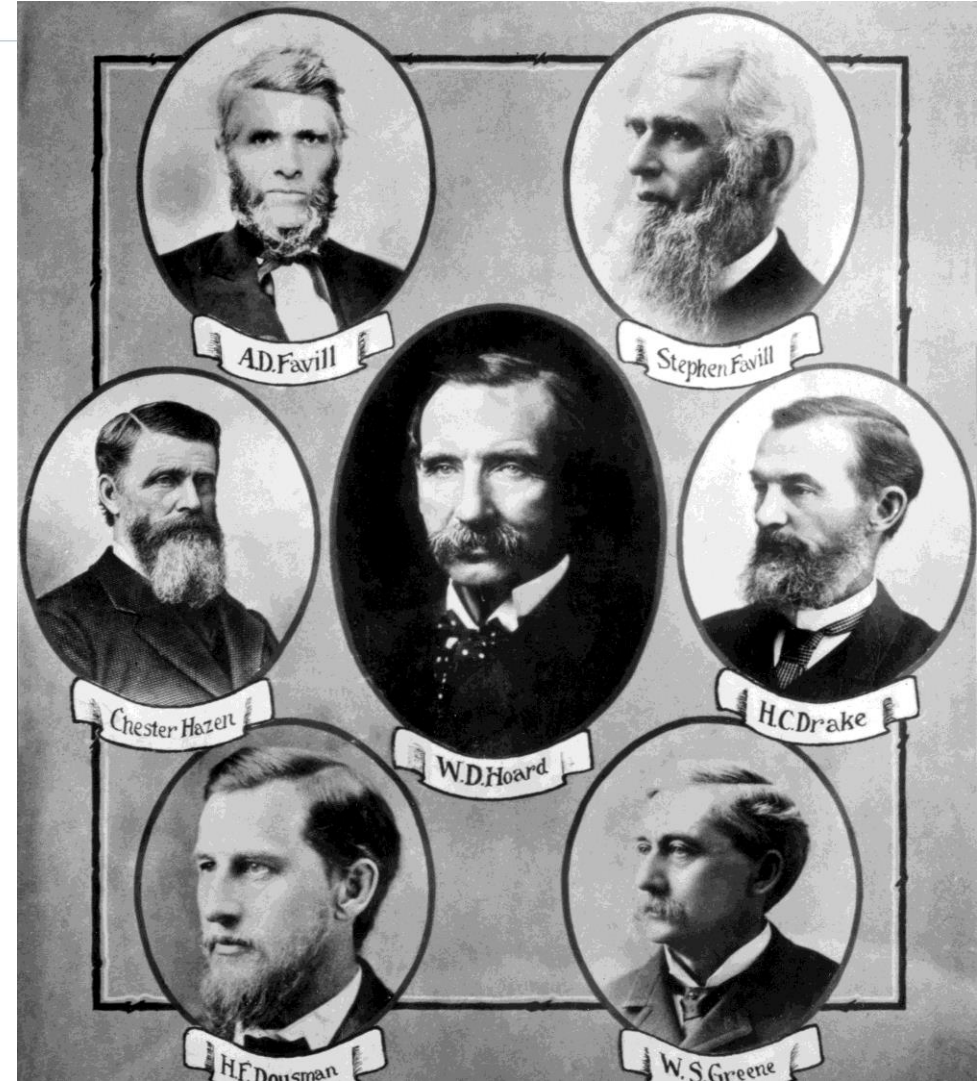
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The Cheeseheads are Born



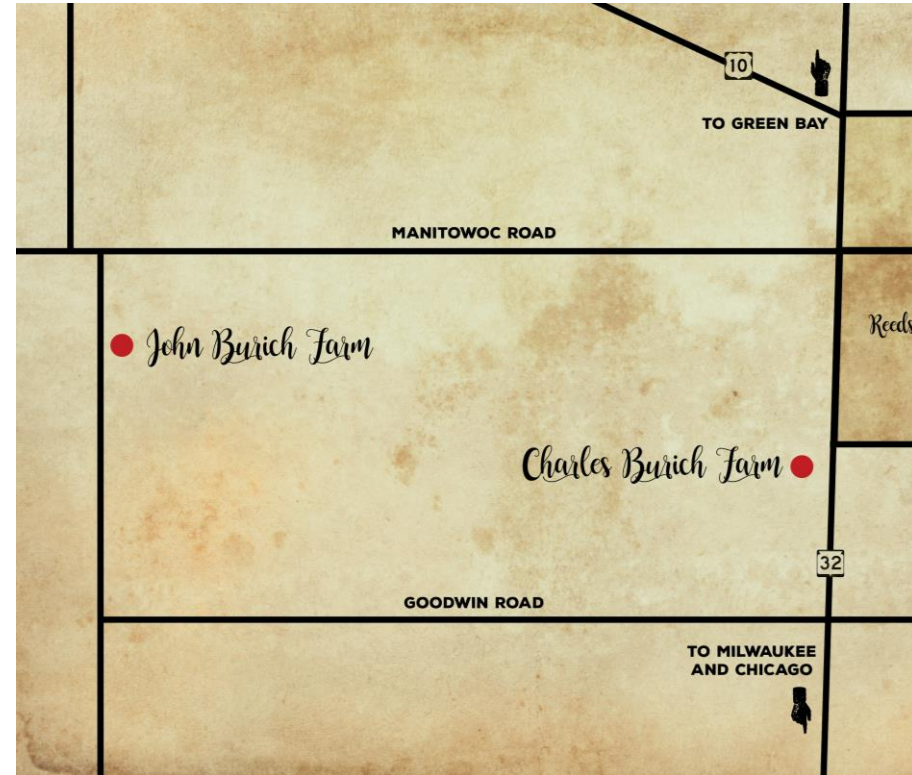
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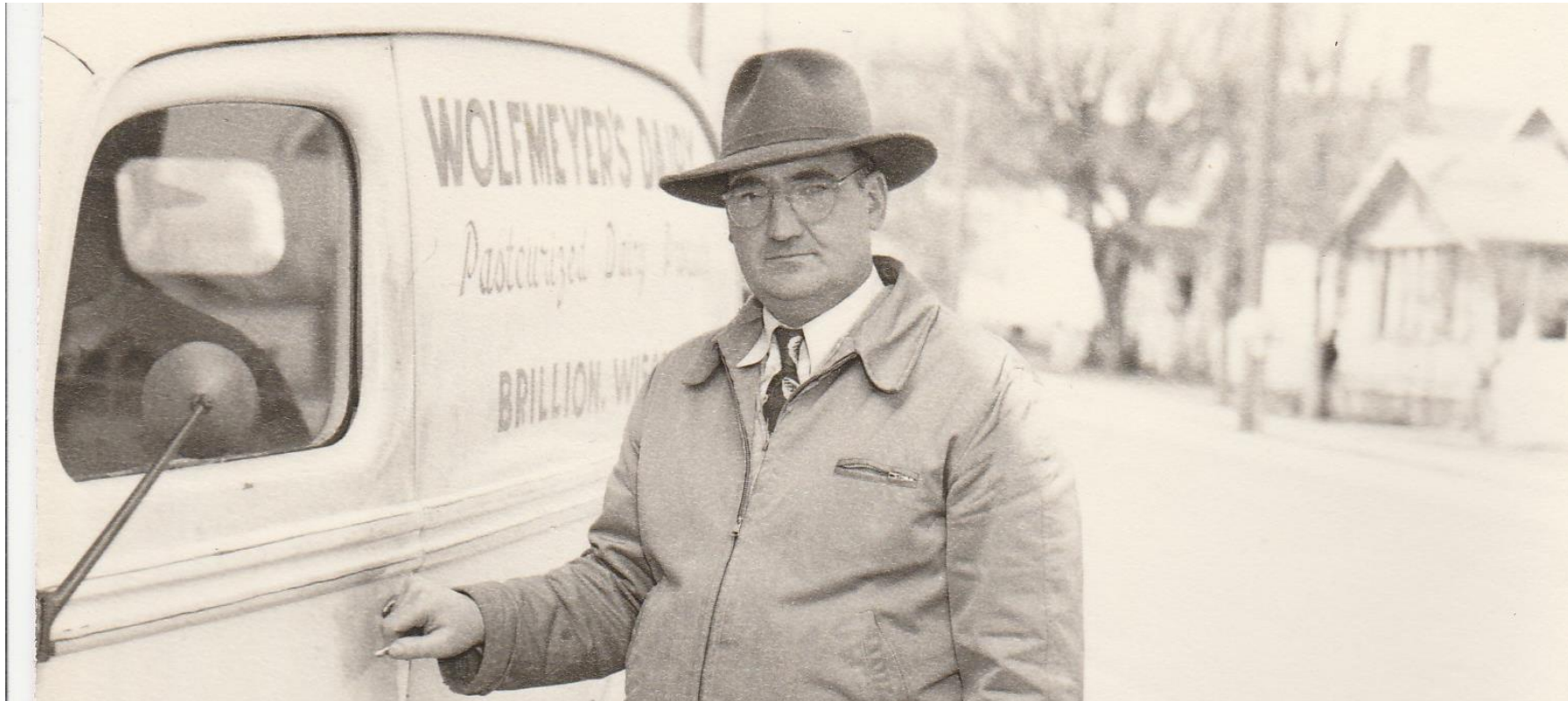
The Copper Cow



Presentation by Corey Geiger, CoBank.



Mr. Wolfmeyer's Milk Route



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The Game of Telephone



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The Love of Allis



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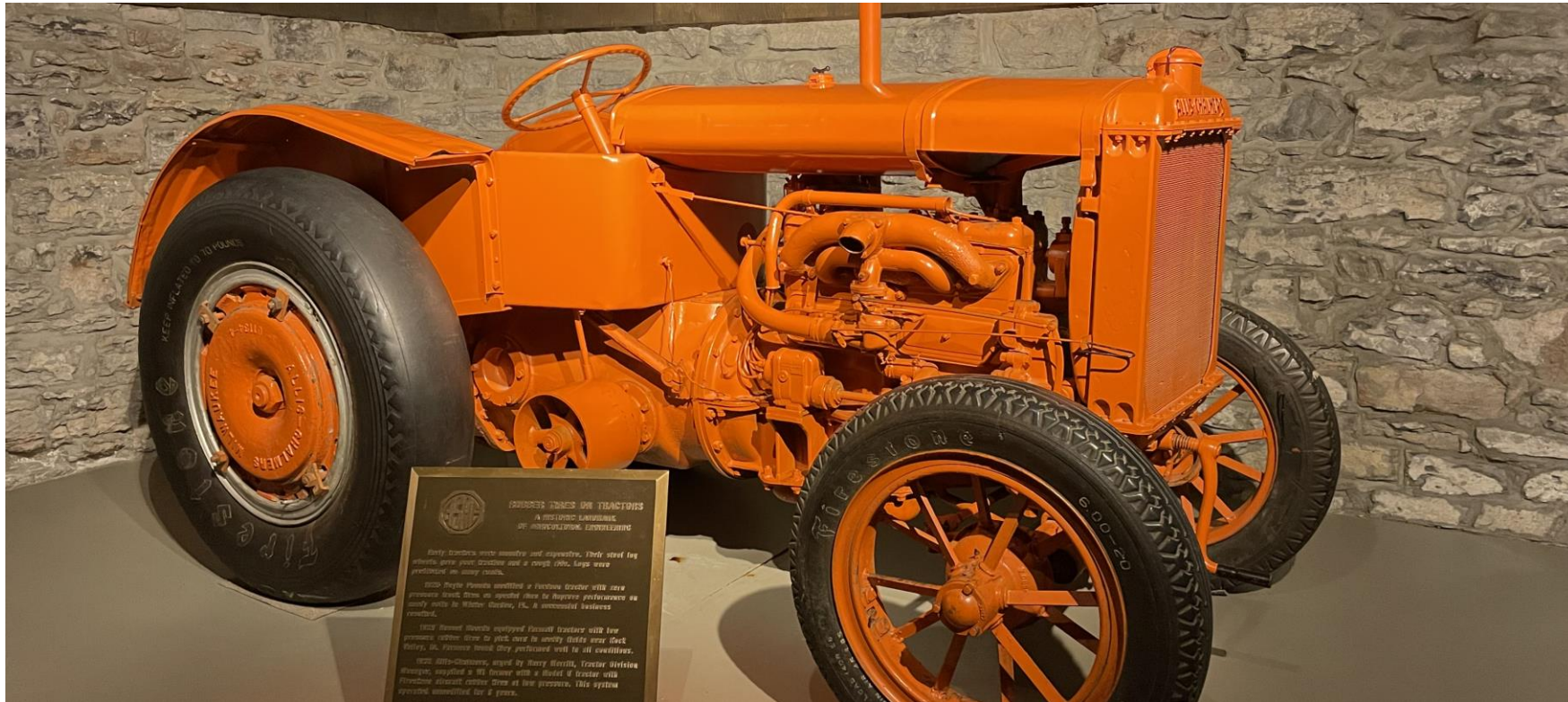
Super Bloom in California



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Allis Innovates with Rubber Wheeled Tractors



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A Tour of Allis Chalmers During Depths of WWII



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Milwaukee's “Rosie the Riveters”

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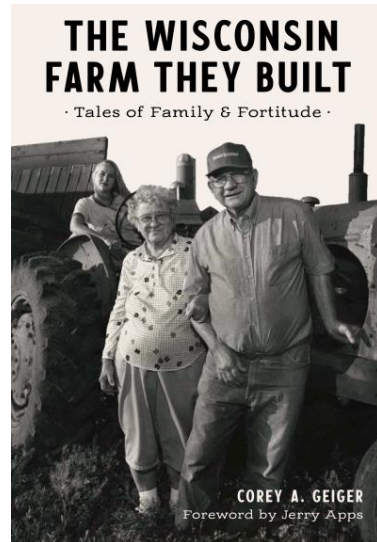
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Allis Orange Lives On Despite its Death



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The Wisconsin Farm They Built

Tales of Family and Fortitude

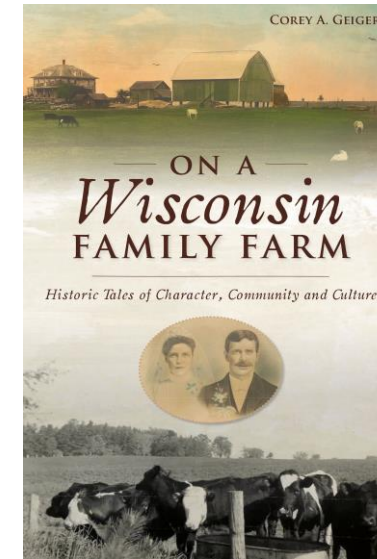
On A Wisconsin Family Farm

Historic Tales of Character, Community and Culture

Corey Geiger — Author

2022 National Indie Excellence Finalist

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Nashville, Tennessee • November 8, 2023**